

## Digital Skills: A Primer

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### ABSTRACT

Digital skills are the essential skills you need to study, work, participate, contribute, and operate in our fast-evolving digital world. They enable individuals to create and share digital content, communicate and collaborate, and solve problems. Digitalization has changed the nature of work making digital skills essential for the modern workforce.

Demand for digital skills has increased dramatically in recent years as the workplace has become digitized. Shortage in digital skills, due to a lack of training opportunities, is leaving organizations unable to recruit the digitally skilled workers they need. This paper provides an overview of digital skills and its uses.

**KEYWORDS:** *digital skills, digital literacy skills, digital competence skills*

### INTRODUCTION

Digital technology is the reality of the world we live in. It touches every aspect of our lives in a way. It is a major driver for growth, productivity, competitiveness, and innovative capacity. The global economy is increasingly digitalized. The globalization of the digital economy is profoundly impacting every industry in every nation. Automation and digitalization are affecting almost all jobs and placing new demands on everyone. In the past decade, we have experienced a massive digital transformation such as social media, smart devices, 5G internet, advanced analytics, cloud computing, artificial intelligence, etc. Taken together, these technologies are transformational, disruptive, and have had a significant impact on daily jobs worldwide [1]. Different technologies and skills can be used by individuals to accommodate both their age and their objective.

Digital skill is any skill that qualifies a person to become digitally literate. Digital skills have become crucial in our society today. All organizations are now realizing that digital skills are very important for employees in the digital era. Employees need to be

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cross-disciplined and have both hard and soft skills. Those with digital skills, including coding, web development, and digital marketing, will become highly valued. Acquiring digital skills to enter the job market of the 21<sup>st</sup> century is becoming vital. The technological revolution is creating new opportunities and workers need digital skills so as not to be left behind.

### WHAT ARE DIGITAL SKILLS?

Digital skills refer a range of abilities to use digital devices and digital networks to access and manage information. Digital skills are various skills and abilities that enable a person to communicate effectively, collaborate, and solve problems using digital tools. Skills are often attributed to intangible qualities, traits, attributes, and attitudes. These include empathy, leadership, sense of responsibility, integrity, self-esteem, self-management, motivation, flexibility, sociability, time management, and decision making. Skills may be “soft,” “technical,” or “hard” skills which are deemed as highly specific in nature and often attributed to occupations or careers. Soft skills are sometimes referred to as human skills

or ‘transferrable skills [2]. Being able to operate computers, smartphones, and the Internet are elementary skills within TEH modern world. These skills are included in the general ability to use hardware and software.

Digital skills are regarded next to other necessary skills such as effective communication, collaboration, etc., They make you feel confident in your own capabilities to navigate through a constantly changing digital environment. Digital skills are rapidly translating from “good to have” to “must have,” especially in the corporate world [3]. Changes in culture, based on the new technology, have effects on the use of terms. In recent years, several terms have been used to describe the skills and competence of using digital technologies. Such terms include ICT skills, technology skills, information technology skills, 21st century skills, information literacy, digital literacy, and digital skills [4].

Digital skills can be categorized in six key areas [5]:

1. ICT Proficiency
2. Information, data, and media literacies
3. Digital creation, problem solving, and innovation
4. Digital communication, collaboration, and participation
5. Digital learning and development
6. Digital identity and wellbeing.

The digital skills training will help improve the participants’ use of digital skills to contribute to their economic growth as entrepreneurs, thereby further filling in critical gaps in the labor market, fitting their businesses within existing supply chains, and invariably contributing to development.

### TYPES OF DIGITAL SKILLS

One can divide skills into basic, intermediate, and advanced digital skills.

At the bottom, we have what the UK Department for Education (DfE) calls “digital foundation skills.” Foundation skills are needed in all circumstances before moving on to develop skills for life and skills for work. They are entry-level digital skills or basic functional skills required to make basic use of digital devices and online applications. They are widely considered a critical component of a new set of literacy skills in the digital era, with traditional reading, writing, and numeracy skills. The five digital foundation skills for life and work are communicating, handling information and content, transacting, problem solving, and being safe and legal online. They are needed in a day-to-day professional or personal context. They are illustrated In Figure 1 [6]. Basic or entry-level digital skills can include [7]:

- Computer literacy

- Digital literacy
- Problem solving
- Creativity
- Data entry
- Social media
- Web-based communications and research
- Word processing
- Email and chat
- Secure information processing
- Using the right digital devices
- Using different online resources
- Sharing information effectively
- Establishing good data security practices
- Communicate and collaboration
- Staying safe in the digital environment.

Advanced digital skills refer to highly specific skills required for particular job roles. They require proficiency in intermediate digital skills and should ideally be taught as part of the curriculum in higher education institutions. These are higher-level abilities that allow users to make use of digital technologies in empowering and transformative ways such as professions in ICT. Major digital transformations such as artificial intelligence (AI), machine learning, big data analytics, and cloud computing change skills requirements and equip one for skills development for the 21st century digital economy. Advanced digital skills for the workplace are taking businesses by storm [8]. Advanced digital skills can include [7]:

- Programming, web, and app development
- Digital business analysis
- Digital marketing and content creation
- Digital design and data visualization
- Digital product management
- Data science
- User experience design

### DEVELOPING YOUR DIGITAL SKILLS

Many Americans lack digital skills, and these skill gaps are disproportionately large for individuals facing other barriers such as limited English proficiency, poverty, and limited education. To meet the demands of the future workforce, training in digital competence, digital literacy, and digital skills from early years to elderly citizens is needed to prepare people for different careers. There are free digital skills courses for all levels. Everyone must ensure that our digital skillset is as wide as possible for future need. Digital skills are developed over time. Digital skills are acquired over time through educational and social use of technology, through formal instruction, informal self-learning, and learning from peers.

- **Adults:** Effort should be made to teach adults or young students digital skills. The need for digital

skills become more pronounced as we climb the career ladder. Digital skills can be imparted is on-the-job training, with junior staff learning, and honing their digital skills with their managers. For those looking to hone their basic digital skills, various tutorials, courses, and how-to guides are available online. These courses may covering topics such as web analytics, social media, and artificial intelligence. These courses are designed to equip learners with essential digital skills for the modern century workplace. With the right skills, software, and a good internet connection, anyone can be a digital freelancer [8]. Figure 2 shows some digital skills everyone should know [9].

- **Children:** The way children use technology is very different from adults. Children are using digital technologies and media at increasingly younger ages and for longer periods of time. They spend an average of seven hours a day in front of screens – from televisions and computers, to mobile phones and various digital devices. Although the digital world is good for learning and entertainment, children are exposed to many risks such as cyberbullying, technology addiction, obscene and violent content, radicalization, scams, and identity theft. Parents, educators, and leaders, must prepare children for the digital age and for the workplace [10].
- **Women:** Gender divides in digital skills are severe. Women are 1.6 times more likely than men to report lack of skills as a factor impeding their use of the Internet. Women constitute an underrepresented asset in America's technology workforce. Women who do not have experience in the tech/digital/IT industry need to develop digital skills. Their learning will include digital literacy, digital marketing, databases, digital advertising, email marketing, cybersecurity, programming, and more. This will help them build confidence, learn industry language, and be better positioned to enter a career in digital/tech/IT [11].
- **Elderly Citizens:** Older adults are regarded as those who are age 50 or older. As a result of increases in life expectancy, improvements in physical health, decreases in the number of physically demanding jobs, and increases in the Social Security retirement age, Americans are working longer and older workers have become a significantly larger percentage of total jobseekers. Older Americans have lower levels of digital skills than younger Americans. Older Americans from historically oppressed groups (i.e., people of

color and women) have lower levels of digital skills than older white workers. Older Americans with better computer and internet access have higher levels of digital skills than older Americans who do not, but their digital skills are still lower than younger Americans even when they have access. Older workers with more digital skills have significantly higher earnings than those with less and are better positioned to compete for the jobs of the future [12].

## APPLICATIONS OF DIGITAL SKILLS

Workers need advanced digital skills across major industry sectors such as education, healthcare, entrepreneurship, social work, manufacturing, business, construction, retail, and hospitality. The following are typical examples.

- **Education:** Education and training institutions must rise up to the challenges of automation and digitization. The current pandemic has compelled educators to be increasingly dependent on the power of digital and web technologies to conduct their daily teaching virtually. Education sector must increase the number of youth and adults with relevant technical and vocational skills for jobs. To do this requires that modern teachers have the four essential skills shown in Figure 3 [13]. It should eliminate gender disparities in education and ensure equal access to all levels. In spite of the recent governmental investments in the digital infrastructure for education and training, large disparities still exist and affect lower-income households who are excluded from digital access and lack basic digital skills [14]. For example, the most important skills for an MBA to learn, in today's world, are digital skills. Relevant digital skills for MBA students are illustrated in Figure 4 [15].
- **Workplace:** Modern workplaces are designed to be responsive to market trends. Major digital transformations such as artificial intelligence, machine learning, robotics, and big data analytics change skills requirements and skills development for the 21st-century digital economy. These digital technologies are reshaping work. Both employers and employees are expected to hone digital and soft skills to take advantage of the new opportunities. Having a workforce that knows how to use them effectively is key to a company's success. Digital skills are increasingly a prerequisite to participate effectively in the workplace and will continue to be required in the future. From the most basic level such as sending emails to data science and AI, our professional lives are ever more dependent upon being able to

use and master new technologies [16]. In the world of work, employers are forced to close offices due to the current pandemic and only allow jobs which lend themselves to teleworking.

- **Business:** Businesses are struggling to integrate new technologies to the existing business practices. The lack of digital skills is hindering organizations from embracing potentially valuable emerging technologies such as artificial intelligence, robotic, and automation. Business leaders believe their organizations need two digital skills: being able to develop and manage a move to cloud-based infrastructure and developing cyber security competencies [17]. Businesses must consider upskilling to give older workers the chance to become more tech-savvy and equip the younger generation with the skills needed to take on the future world of work.
- **Digital Marketing:** Marketing is at the core of all business activities. Without marketing, organizations cannot sell and without sales there is no revenue and without revenue people cannot run business. Digital marketing is an umbrella term used for referring to all online marketing activities. It creates the potential for direct selling to the customers and allows people to consume digital content on a daily basis. Digital marketing (or Internet marketing) refers to marketing of products or services using digital technologies, mainly the Internet and mobile phones. It allow sellers and buyers to conduct transactions electronically through communications networks such as the Internet, intranet, and extranet. As more and more customers use digital devices instead of visiting physical stores, digital marketing become more prevalent. Digital markets are more efficient than traditional or offline markets with respect to price levels, menu costs, and price elasticity [18]. Content is at the forefront of digital marketing, therefore content marketing becomes a big player in your firm's online presence.

## BENEFITS

The digital world is exploding with opportunities to put digital skills to work. Digital skills are the linchpin of modern workplaces. While expanding training to meet soaring demand is a challenge, it is also a unique opportunity to diversify the talent pool. Organizations can embrace this opportunity, and reap the benefits of a more diverse and more skilled workforce. Other benefits include [19]:

- Citizens and businesses will be digitally confident and able to take full advantage of the opportunities that digital technologies can offer.

- Young people have the opportunity to be digitally competent and evolve into enterprising, creative and innovative thinkers with good prospects for rewarding jobs.
- Organizations deliver services based on user needs, making informed and effective decisions and developing a digital and data culture.
- Businesses invest in their workforce as they recognize the value that digital skills bring.
- Talent is developed and retained across public and private sectors.
- The rapid digitization of skills has opened new job opportunities.
- Digital skills fuel the digital economy.
- Updating an employee's digital skills assures that there are no unproductive gaps in their line of work.
- Digital skills are critical to finding or keeping jobs and also critical to closing the digital divide.
- Digital skills training attracts and retains talent.
- Reducing your digital skills gap increases efficiency.

## CHALLENGES

Traditionally, education institutions were built with organizational structures that did not take seamless technology integration into account. Other challenges include the following [20]:

1. There is a strong correlation between people's levels of education and digital skills especially in developing nations.
2. Digital and social inequalities affect opportunities to develop digital skills.
3. Digital skills gap is the challenge of not finding people with the right skills. It is serious problem. On a global scale, the digital skills gap comes at a cost.
4. Integration of new technologies places pressure on workers to keep up with changes in order to avoid job losses.
5. Ensuring the necessary digital skills levels for everyone remains a significant challenge.
6. Without policy interventions, technological developments threaten to exacerbate the inequalities between those with and without digital skills and between men and women.
7. US universities still are not producing enough computer science graduates.
8. The democratization of digital skills will not reach every country, industry, and community equally.

## CONCLUSION

The rise of digitalization has shifted economies and changed skills demand. The demand for digitally skilled professionals has risen dramatically in recent years. Digital skills are critical for all kinds of industries and businesses. Advances like artificial intelligence, machine learning, robotics, cloud computing, and big data continue to transform the way we communicate, work, market, and make decisions. In the digital era, all organizations are realizing that digital skills are vital for employees.

As the Internet is increasingly becoming part of everyday life, policy makers have developed a range of initiatives to try to ensure that all individuals have access to the Internet and make use of the opportunities the Internet and ICTs offer. Such opportunities include emailing, social media, online learning, employment, networking, ecommerce, and informational opportunities. Policy makers should consider both education for those entering the workforce from the traditional education system (e.g., high schools, universities, and community colleges) and reskilling those currently in the workforce with the skills needed to remain competitive [21]. It is therefore imperative that each nation has an action plan for increasing the digital literacy and digital skills. Nations have several options for assessing the performance and impact of their digital skills programs. More information about digital skills can be found in the books in [22-29].

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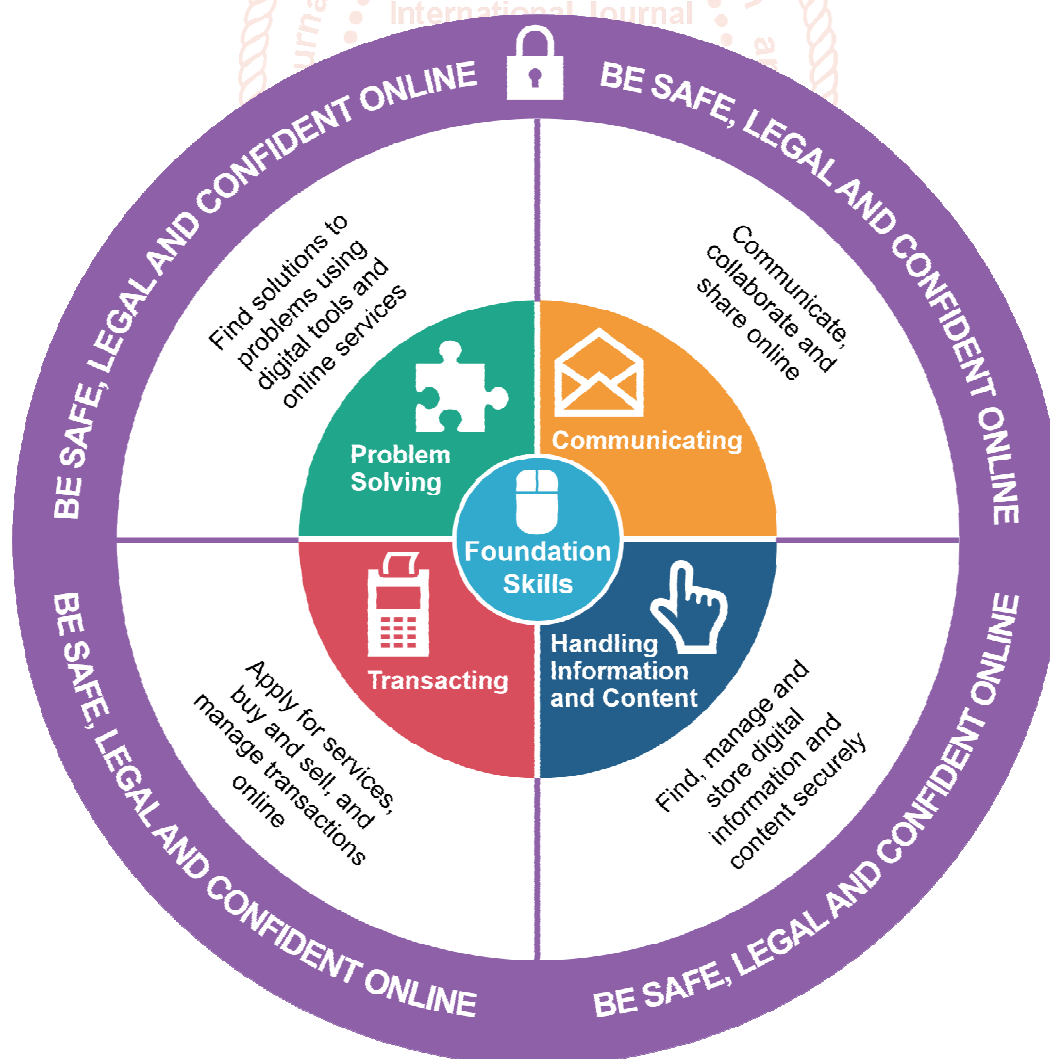


Figure 1 The digital foundation skills [6].



Figure 2 Some digital skills everyone should know [9].



Figure 3 Modern teachers must have the four essential skills [13].

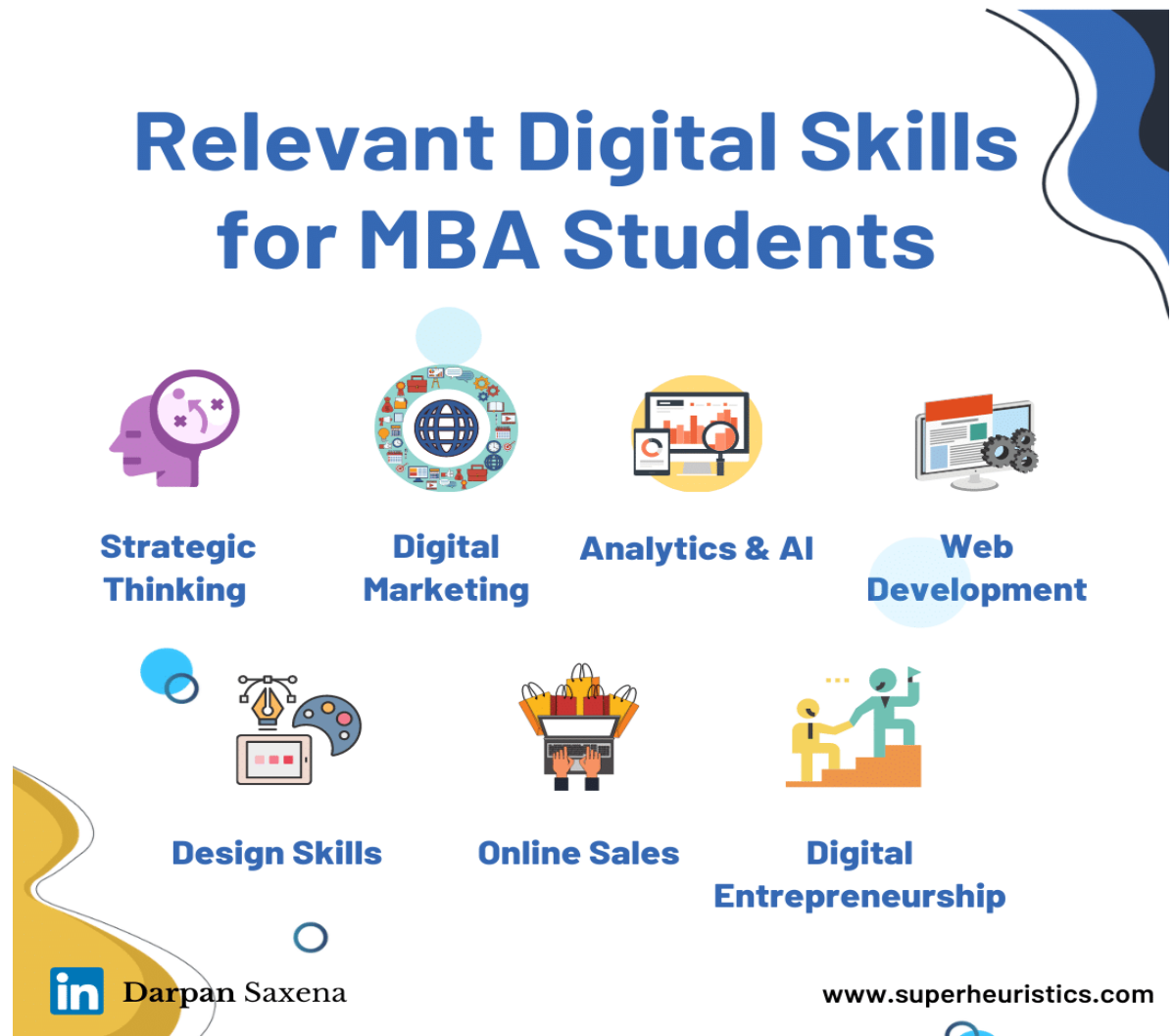


Figure 4 Relevant digital skills for MBA students [15].

